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**Aims:** Premature discontinuation of antiplatelet therapy has been identified as a major risk factor for stent thrombosis and prior aspirin withdrawal has been associated with poor prognosis after acute coronary syndrome. We investigated the hypothesis that biological aspirin “resistance” may often be related to non compliance in patients undergoing coronary stenting.

**Methods and Results:** We prospectively investigated the occurrence of aspirin non compliance in 136 consecutive patients undergoing coronary stenting receiving aspirin 75 mg daily. We analyzed post-treatment maximal intensity of arachidonic acid-induced platelet aggregation (AA-Ag) during hospitalization after controlled intake of aspirin and one month after hospital discharge. After one month, all non responders received controlled aspirin 75 mg and assessment of response was repeated. Aspirin non response was defined by AA-Ag>30%. During in-hospital period, the range of AA-Ag varied from 0 to 34% with a mean value of  $7.5 \pm 10\%$  and 4 patients (3%) were classified as non responders. One month after discharge, AA-Ag of the population was significantly higher than during the hospital phase ( $15.3 \pm 23$  vs  $7.5 \pm 10\%$ ,  $p=0.0004$ ) and 19 patients (14%) were identified as non responders. After controlled administration of aspirin, all but one of these “non responders” became responders and were identified as patients with non compliance rather than biological resistance.

**Conclusion:** Aspirin resistance is rare in compliant patients using methods that directly indicate the degree of platelet cyclooxygenase inhibition. More than 10% of patients receiving aspirin for coronary stenting are non compliant for aspirin therapy during the first month after stenting. These results suggest a need for improved education of these patients.

## 020

### Transfer Time is not a major determinant of in-hospital mortality in Primary PCI when performed in a well organized urban network

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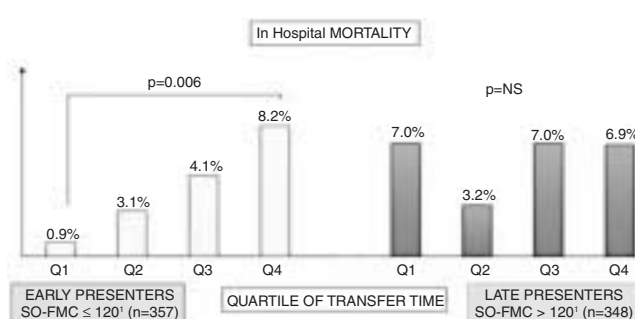
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**Aim:** In STEMI, controversial data exist on the relative importance of patient-dependent time (Symptom-Onset (SO) to first medical contact (FMC)) and Transfer Time (TT=time from FMC to sheath insertion). We assessed the impact of TT on in-hospital (IH) mortality in a well organized urban network using Mobile Intensive Care Units (MICU).

**Methods:** In a web-based registry (e-PARIS), we evaluated delay in care of 705 consecutive STEMI patients transferred to the Pitié-Salpêtrière cath-lab for primary PCI.

**Results:** Population was  $63 \pm 14$  y/o, 75.6% were male, 46.9% had anterior MI, 16.7% were in Killip class 2, and 3.8% had out-of-hospital cardiac arrest. Abciximab was used in 82.4%, radial approach in 87.7% and stenting in 89.7% of patients. Median time (IQR) from SO to FMC was 110 (248) min (102 (190) min when FMC was MICU and 160 (381) min when FMC was a referring hospital,  $p<0.0001$ ). Median TT was 104 (75) min (95 (45) min for MICU and 151 (178) min for patients transferred from a primary hospital,  $p<0.0001$ ). When divided into quartiles, increasing TT was associated with higher IH mortality. This relation to IH mortality was striking in patients presenting early (within 2 hours of SO), and not significant in late presenters (>2 hours of SO) (fig). After adjustment for baseline characteristics, TT was not associated with mortality anymore suggesting that the sicker patients had the longest TT.

**Conclusions:** The association between TT and early mortality is strongly dependent on patients' characteristics and time to presentation. After adjustment for these parameters, TT does not appear to be a major contributor of IH mortality in a well organized urban network for primary PCI. Improving time-to-first medical contact may be more critical.



## 021

### CYP2C19\*2 genetic variant: a new risk factor for stent thrombosis, myocardial infarction and cardiovascular mortality

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**Background:** The \*2 variant of the CYP2C19 gene encodes a defective enzyme that likely fails to adequately convert clopidogrel to its active metabolite, leading to diminished cardiovascular protection.

**Objectives:** We performed a meta-analysis of trials that determined the CYP2C19\*2 genetic variant in patients exposed to clopidogrel therapy after stent implantation. The primary objective was to evaluate whether carriage of the CYP2C19\*2 was associated with the occurrence of stent thrombosis, recurrent myocardial infarction and cardiovascular death.

**Methods and results:** Eight trials (9427 patients) with data available on death, recurrent myocardial infarction, stent thrombosis and any ischemic events were selected. The odds ratio (OR) as the parameter of efficacy with a fixed effect model was used. Carriers of the genetic variant associated with a loss-of-function of the CYP2C19 enzyme (28%, n=2674) displayed a 30% increase in the risk in any ischemic events compared to non carriers (10.4% vs 8.3%) (OR, 1.31; 95% CI, 1.12-1.53;  $p<0.001$ ). This metanalysis confirmed the excess of stent thrombosis (2.9% vs 0.9%) (OR 3.01; 95% CI: 1.89-4.80,  $p<0.001$ )(n=4975) but also of death or MI (12.1% vs 5.3%)(OR 2.51; 95% CI: 2.07-3.05,  $p<0.001$ )(n=7022). This single gene variant (CYP2C19\*2) was also associated with an excess of cardiovascular mortality (1.8% vs 1.0%)(OR 1.79; 95% CI: 1.10-2.91,  $p<0.019$ )(n=6225).

**Conclusions:** Our findings support rapid genetic testing for the CYP2C19\*2 to identify patients with a deficient clopidogrel metabolic activation. The clinical relevance of such approach remains to be established by adequately powered randomized studies.

## 022

### One year follow-up of nonrandomized comparison between CABG surgery and DES for the treatment of ULMCA artery disease in elderly patients

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**Purpose:** The present observational study compares in-hospital and 12 month clinical outcomes in elderly patients (aged  $\geq 75$  years) with unprotected left main coronary artery (ULMCA) disease treated either with coronary artery bypass grafting (CABG) or drug eluting stent (DES).

**Methods:** From January 2004 to December 2007, 211 patients (pts) with ULMCA stenosis, aged 75 or older, underwent a coronary revascularisation

either with CABG (106 pts) or DES (105 pts). Decision to treat with CABG or PCI was dependent on the patient's and the physician's choice. The occurrence of major adverse cardiac or cerebrovascular events (MACCE: death, non fatal myocardial infarction or stroke) and revascularisations was recorded after one year follow-up. A multivariate logistic regression analysis was performed, using a propensity score method to take into account potential baseline differences between groups.

**Results:** In-hospital MACCE rates were 5.7% and 3.8% in CABG and PCI groups, respectively ( $p=0.748$ ). After, one-year follow-up, rates were respectively 15.4% and 16.3% ( $p=0.865$ ). Rates for target vessel revascularisation at 12 months were 1.1% and 15.2% ( $p<0.001$ ). PCI group was significantly associated with older age, dyslipidaemia, history of cancer, high euroscore, elevated creatininemia, single vessel disease, chronic occlusion of left anterior descending artery and LMCA stenosis  $\geq 70\%$ . The multivariable logistic regression analysis was adjusted for age, diabetes, left ventricular ejection fraction, euroscore, and stratified on the propensity score to be treated with PCI. In the subgroup below median propensity score, the adjusted odds ratio for one-year MACCE was  $OR=0.98$  (95% confidence interval: 0.17 to 5.67;  $p=0.981$ ) whereas  $OR$  was 0.20 (0.04 to 0.97;  $p=0.046$ ) in the subgroup above median propensity score.

**Conclusions:** In patients with a high probability to be treated with PCI (older age, high euroscore, high creatininemia, single vessel disease...), one-year risk of death was significantly lower in PCI as compared to CABG treated subjects. No significant difference was found in other cases.

## 023

### Impact of time on thrombus composition in STEMI patients treated with Primary PCI

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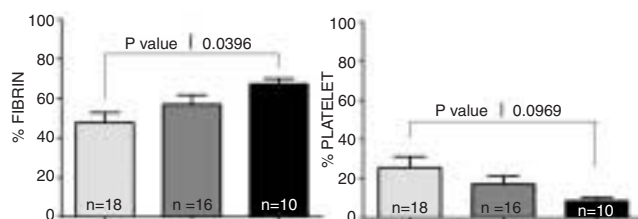
**Aim:** To identify factors associated with change in thrombus pattern in STEMI patients undergoing primary PCI.

**Methods:** Thrombi ( $n=45$ ) were obtained using the Export thromboaspiration device in consecutive STEMI early presenters ( $<12$  hours from symptoms onset) undergoing primary PCI. Ten different areas of each thrombus were randomly scanned using a Scanning Electronic Microscope (4nm resolution). High definition pictures (Magnification 3000X) were analysed in a blinded way by a semi-quantitative and a visual approach to evaluate fibrin and platelet content (in %). The primary endpoint was fibrin and platelet content according to time delay from symptom onset (SO). All patients were enrolled in the web-based registry (e-PARIS).

**Results:** Mean age was  $59\pm 14$  years, 25 (83%) were male, 16 (53%) were smoker, 12 (40%) had hypertension, 12 (40%) dyslipidemia and 7 (23%) were diabetic. 4 patients (13.3%) had pre-hospital cardiac arrest and 25 patients (83%) had a single vessel disease. All Patients received aspirin, clopidogrel, enoxaparin or UHF and 25 (83%) received abciximab. Thrombi were composed by  $55.9\pm 18\%$  of fibrin (mean $\pm$ SD),  $16.8\pm 18\%$  of platelets,  $11.5\pm 9\%$  of red cells,  $5.2\pm 8.4\%$  of cholesterol crystal,  $1.3\pm 2.0\%$  of white cells, and  $2.8\pm 3.7\%$  mixed cell-fibrin. Median time delay from SO to PCI was (182 min  $\pm$  235 IQR). There was a stepwise decrease in platelet content with respect to prolonged time delay from SO to PCI ranging from  $25.6\pm 25\%$  in the first tertile down to  $8.7\pm 7\%$  in the third tertile ( $p=0.09$ ) (fig.). On the other hand, there was a stepwise increase in fibrin content ranging from  $47.8\pm 24\%$  up to  $67.3\pm 9\%$  ( $p=0.04$ ). Analysis of other determinants of clot composition and relation with myocardial TIMI Blush Grade is pending.

**Conclusions:** Platelet and fibrin content within the occlusive thrombus of early STEMI presenters is a fast evolving process. Time delay from symptom onset is a key determinant of thrombus composition.

Thrombus content in STEMI according ischemic time



## 024

### Acute hyperglycemia is associated with adverse outcome after primary angioplasty for acute myocardial infarction: GLAMI Study

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Hyperglycemia has been shown to be a powerful predictor of worse outcome after ST segment-elevation myocardial infarction (STEMI).

The aim of this study was to investigate the relation between acute hyperglycemia (AHG) and in-hospital outcome after primary angioplasty for STEMI.

**Patients and Methods:** We prospectively included 250 patients who underwent revascularization with primary angioplasty for STEMI. Plasma glucose was measured at hospital admission. Acute hyperglycemia was defined as plasma glucose of 11 mmol/L (198 mg/dL), regardless of the diabetic status.

**Results:** Among the 250 patients with STEMI included in the study, 124 (49.6%) patients had acute hyperglycemia. There was no difference among the two groups with regard to clinical characteristics except for the presence of diabetes (58% vs 7.1%,  $p<0.001$ ), hypertension (21.4% vs 38.7%,  $p=0.002$ ) and hyperlipidemia (4.8% vs 14.5%,  $p=0.007$ ). At admission, patients with AHG were more likely to have tachycardia (26.6% vs 14.3%,  $p=0.012$ ) and to present heart failure (24.2% vs 12.7%,  $p=0.01$ ). The admission TIMI flow was similar in the two groups. TIMI 3 flow postprocedure was more common in patients without AHG (89.7% vs 75%,  $p=0.002$ ). The in-hospital mortality rate was significantly higher in patients with AHG than in patients without (22.6% vs 4.8%,  $p<0.001$ ). In multivariate analysis, independently of other determinants of death (age, risk factors, location of STEMI, infarct size, incomplete resolution of ST-segment and angiographic success), acute hyperglycemia was a predictor of in-hospital mortality ( $OR$ : 3.14; 95% IC, 1.5-6.5;  $p=0.0001$ ).

**Conclusion:** Acute hyperglycemia in patients with STEMI was an important predictor of mortality, this suggest the usefulness of evaluating early glycemic control in the setting of reperfusion for acute myocardial infarction.

## 025

### Benefit of Drug Eluting Stents over Bare Metal Stents after Rotational Atherectomy. A propensity score adjusted comparison in revascularization, mortality and MACE.

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**Rationale:** Rotational atherectomy makes possible to attempt small and calcified arteries while Drug Eluting Stents (DES) properties may reduce the restenosis process, rendering this combination attractive in selected cases. We compared 1 year clinical outcome after rotational atherectomy following by either DES or Bare Metal Stents (BMS) implantation.

**Methods:** Single centre registry including all consecutive cases of rotational atherectomy use. Clinical follow-up was obtained in all patients. Propensity score for being treated with a DES was calculated using 18 clinical,